保存科学に関わる活動報告

著者	塚田 全彦
雑誌名	国立西洋美術館年報
巻	40
ページ	50-51
発行年	2007-03-31
URL	http://id.nii.ac.jp/1263/00000283/

保存科学に関わる活動報告
Report on Conservation Science Activities

2005年度も前年度に引き続き、館内への生物侵入・生息状況の予備調査を重点的に行なった。屋外に通じる扉や開口部の付近などを中心に、館内の100カ所程度に捕虫用の粘着トラップを設置し、一定期間に捕捉された昆虫などの生物の種類、数を集計した。これを季節ごとの約3カ月おきに行ない、生物の館内への侵入・生息の状況を把握することを試みた。その結果、外気温の高い春から夏にかけてダンゴムシ、ワラジムシ、ムカデ、などが特に中庭や前庭の東側に面した開口部に近い場所からたくさん侵入していることが確認された。とりわけ夏にはこれらが大量に発生し、トラップを逃れたものが展示室の中にまで侵入していた。これらの生物は文化財に直接に害を為す、いわゆる文化財害虫ではないが、不快害虫と呼ばれる類であり、来館者への配慮はもとより、その死骸があると他の生物を誘引する原因ともなるので、館内への侵入はできるだけ防いだ方がよいと思われる。幸い発生源は中庭や本館脇の植え込みであることが確認できたので、これらの場所に不快害虫駆除用の殺虫剤を散布し、また建物外周に忌避剤を散布した。その結果、開口部周辺でもこれらの不快害虫がトラップにかかる数は激減した。ただしこの措置により完全に駆除できたのではなく、その総数を大幅に減らすことができたと考えるべきであり、次年度以降も同様にトラップによるモニタリングを行ない、再度多量の発生が確認された場合は同様の薬剤による処置が必要となるであろう。一方で、文化財害虫としてはチャタテムシやゴキブリ、カマドウマなどが1階を中心に館内各所で数匹捕捉された。チャタテムシはカビの胞子を餌とし、湿度の高いところを好む。当館では24時間の機械空調稼働により館内の温湿度を50-55%程度に安定させているため、大量に発生することはないと考えられる。しかし部屋の隅など、ほこりのたまった場所は局所的に湿度が高くなる場合もあり、チャタテムシが生息しやすい環境になることもありえるので、特に収蔵庫や展示室では部屋の隅まで掃除を行き届かせるようにしたい。またゴキブリ、カマドウマも開口部付近で捕捉されることが多く、館外から侵入してくるものがほとんどであると考えられるが、特にゴキブリの侵入を阻止することは容易ではない。今後何らかの対策を考案する必要がある。

また、各展示室・収蔵庫の温湿度管理、貸出作品への温湿度データロガーの装着と記録管理、展覧会で用いるために製作する展示ケース用内装材の化学的性質の検査、などの保存科学室が行なっているルーティン・ワークも、例年同様に行なった。なお、2006年1月に塚田は東京国立博物館に転任したため、以降は非常勤研究員の高嶋美穂が引き継いだ。

一方で、研究活動としては、前年度から引き続き2005年5月までの間、塚田は国立西洋美術館在外研究員制度による助成を受け、University College London（英国）において、近代絵画材料の化学的分析に関して在外研究を行なった。具体的には、18世紀以降に油絵具に用いられるようになった顔料のうち、おもに無機顔料についてラマンスペクトルライブラリーを作成した。また、前年度に塚田が在外研究を行なったIstituto di Fisica Applicata "Nello Carrara"（イタリア）よりMarcello Picollo氏が来日、東京文化財研究所に約1カ月間滞在し、塚田が在外研究期間中に行なった「近代絵画材料の非破壊的調査法に関する研究」に関連して、ポータブル型蛍光X線分析および三次元蛍光分光分析による非破壊調査法に関して共同研究を行なった。（塚田全彦）

Continuing on from the previous fiscal year, during fiscal 2005 the Conservation Science Section gave particular importance to carrying out the preparatory survey on the presence of insects and small animals in the museum structures. Insect traps with sticky surfaces were placed in approximately 100 locations throughout the buildings, primarily near doors and openings to the outside. The staff then gathered data on the types and numbers of insects captured in these traps. This study was begun in the previous fiscal year to gain a grasp of the situation regarding insect life in the museum and was conducted once a season, every three months. It was noticed that when the outdoor temperature was high, particularly during the summer and spring months, pill bugs (*Armadillidium vulgare*), sow bugs (*Porcellio scaber*), and centipedes (*Chilopoda*) were remarkably prevalent around the openings on the central courtyard and those on the eastern face of the building near the forecourt. There were large numbers of such organisms in the summer, and some that escaped the traps made it into the exhibition galleries. These species are not considered particularly harmful to cultural properties and art works, but they are "undesirable insects" and it is necessary to consider ways of preventing their entry into the buildings so they cannot bother visitors and so that their corpses will not attract other invasive species. Luckily their source was identified as the landscaped area next to the Main Building and in the central courtyard. Insecticides designed to eradicate undesirable insects were spread in those areas and repellents were used around the exterior of the buildings. The result was a great reduction in the number of these pests found in the traps by the exits and openings. However, a great reduction in the overall numbers does not mean complete eradication of the problem. Thus, in order to prevent a reemergence of the problem, it will be necessary to monitor the situation in the next fiscal year, and to reapply, as necessary, the various chemicals used in this round of treatment. Other kinds of insects, those which directly harm cultural properties such as book lice (*Psocoptera*), black beetles or cockroaches (*Blattaria*), and cave crickets (*Rhaphidophoridae*), have been found in several locations, primarily in the first floor area. Book lice eat mold spores and prefer a moist climate. Because the museum's air conditioning system works 24 hours a day to maintain a 50-55% humidity level in the buildings, book lice are not present in large numbers. However, there are instances of increased humidity in corners and other areas where dust might gather, and this provides conditions suited to booklice. This means that special care must be taken to ensure that thorough cleaning is carried out in all corners, and edges of rooms, particularly in galleries and storage area rooms. Cockroaches and cave crickets also appear in some numbers in the door and entrance areas, and while they come from outside, it is not easy to completely prevent their entrance, particularly in the case of cockroaches. There is a need

for appropriate measures in this regard in the future.

This fiscal year also saw a continuation of the Section's routine work, such as the management of temperature and humidity in galleries and storage areas, the installation of and collection of data from temperature and humidity data loggers attached to works sent on loan, and the scientific analysis of the materials used on the interior of display cases made for the galleries. In January 2006, Masahiko Tsukuda was transferred to the Tokyo National Museum, and hence special researcher Miho Takashima continued the routine work after that date.

In terms of the research carried out during the fiscal year, continuing on from the previous fiscal year and ending in May 2005, Tsukuda was funded by the NMWA Overseas Research Program and conducted a study on the chemical analysis of modern painting materials at University College London. In particular, Tsukuda created a Raman spectra library of pigments, particularly inorganic pigments, used in oil paintings from the 18th century onwards. Further, Dr. Marcello Picollo, of the Istituto di Fisica Applicata "Nello Carrara," where Tsukuda conducted research in the previous fiscal year, visited Japan and spent approximately one month at the National Research Institute of Cultural Properties, Tokyo. During that time Tsukuda and Picollo conducted joint research on non-invasive investigation methods using 3D fluorescence spectrometry and X-ray fluorescence spectrometry with portable devices, related to Tsukuda's study regarding non-invasive investigation methods of modern painting materials conducted during Tsukuda's period of overseas research. (Masahiko Tsukada)